WHAT IS CLAIMED IS:

1. An immunogen composition for stimulation of an immune response when administered to a host, the immunogen composition comprising:

an antigen, a biocompatible polymer and a liquid vehicle;

wherein, the polymer interacts with the liquid vehicle to impart reverse thermal viscosity behavior to the composition, so that the viscosity of the composition increases when the temperature of the composition increases over at least some temperature range; and

wherein, the composition further comprises an additive enhancing the immune response when the composition is administered to the host, the additive being selected from the group consisting of a penetration enhancer, an adjuvant and combinations thereof.

2. The immunogen composition of Claim 1, wherein the temperature range is below 40 °C.

3. The immunogen composition of Claim 2 wherein the temperature range is from 1 °C to 37 °C.

4. The immunogen composition of Claim 2, wherein the composition is in the form of a flowable medium at least when the composition is at a first temperature in the temperature range and the composition is in a gel form at least when the composition is at a second temperature in the temperature range, the second temperature being higher than the first temperature.

5. The immunogen composition of Claim 4, wherein the first temperature is in a range of from 1 °C to 20 °C.

6. The immunogen composition of Claim 3, wherein the first temperature is in a range of from 1 °C to 20 °C and the second temperature is in a range of from 25° C to 37 °C.

7. The immunogen composition of Claim 4, wherein the polymer is substantially all dissolved in the liquid vehicle when the immunogen composition is at the first temperature, and at least a portion of the polymer comes out of solution in the liquid vehicle when the temperature of the composition is raised from the first temperature to the second temperature.

8. The immunogen composition of Claim 1, wherein the polymer is a polyoxyalkylene block copolymer.

9. The immunogen composition of Claim 8, wherein the polyoxyalkylene block copolymer comprises at least one block of a first polyoxyalkylene and at least one of second polyoxyalkylene.

10. The immunogen composition of Claim 9 wherein the first polyoxyalkylene is polyoxyethylene and the second polyoxyalkylene is polyoxypropylene.

11. The immunogen composition of Claim 10, wherein the polyoxyalkylene block copolymer has the formula:

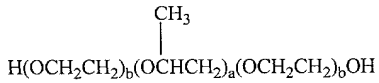
$HO(C_2H_4O)_b(C_3H_6O)_a(C_2H_4O)_bH$

wherein a and each b are independently selected integers.

12. The immunogen composition of Claim 11, wherein the $(C_2H_4O)_b$ blocks together comprise at least 70 weight percent of the polyoxyalkylene block copolymer.

13. The immunogen composition of Claim 11 wherein a is between 15 and 80 and each b is independently between 50 and 150.

14. The immunogen composition of claim 10, wherein the polyoxyalkylene block copolymer has the formula:



wherein a is 20 to 80 and each b is independently 15 to 60.

15. The immunogen composition of Claim 1, wherein the antigen is derived from at least one of bacteria, protozoa, fungus, hookworm, virus and combinations thereof.

16. The immunogen composition of Claim 1, wherein the antigen comprises at least one of tetanus toxoid, diphtheria toxoid, a non-pathogenic mutant of tetanus toxoid, a non-pathogenic mutant of diphtheria toxoid and combinations thereof.

17. The immunogen composition of Claim 1, wherein the antigen comprises at least one antigen from Bordatella pertussis.

18. The immunogen composition of Claim 1, wherein the antigen comprises at least one antigen from influenza virus.

19. The immunogen composition of Claim 1, wherein the antigen comprises at least one antigen from M. tuberculosis.

20. The immunogen composition of Claim 1, wherein the antigen is derived from at least one causative agent of childhood illness.

21. The immunogen composition of Claim 1, wherein the antigen comprises at least one of rotavirus and at least one antigen derived from rotavirus.

22. The immunogen composition of Claim 1, wherein the antigen comprises at least one of a polysaccharide, a peptide mimetic of a polysaccharide, or antigen from Neisseria meningitiditis and an antigen from Streptococcus pneumoniae.

23. The immunogen composition of Claim 1, wherein the antigen comprises Epstein-Barr virus or at least one antigen derived from Epstein-Barr virus.

24. The immunogen composition of Claim 1, wherein the antigen comprises Hepatitis C virus or at least one antigen derived from Hepatitis C virus.

25. The immunogen composition of Claim 1, wherein the antigen comprises HIV or at least one antigen derived from HIV

26. The immunogen composition of Claim 1, wherein the antigen comprises at least one molecule involved in a mammalian reproductive cycle.

27. The immunogen composition of Claim 1, wherein the antigen comprises HCG.

28. The immunogen composition of Claim 1, wherein the antigen comprises at least one tumor-specific antigen.

29. The immunogen composition of Claim 1, wherein the antigen comprises at least one antigen from a blood-borne pathogen.

30. The immunogen composition of Claim 1, wherein the composition contains at least two antigens.

31. The immunogen composition of Claim 1, wherein the antigen comprises a first component selected from the group consisting of tetanus toxoid, a nonpathogenic mutant of tetanus toxoid and combinations thereof; and

the antigen comprises a second component selected from the group consisting of diphtheria toxoid, a nonpathogenic mutant of diptheria toxoid and combinations thereof.

32. The immunogen composition of Claim 1, wherein the adjuvant comprises products of microorganisms, such as bacteria or yeast, that can enhance uptake and presentation of antigens by antigen presenting cells.

33. The immunogen composition of claim 1, wherein the adjuvant comprises dimethyl dioctadecyl ammonium bromide (DDA).

34. The immunogen composition of Claim 1, wherein the adjuvant comprises a C_pG motif.

35. The immunogen composition of Claim 1, wherein the adjuvant comprises a cytokine.

36. The immunogen composition of claim 1, wherein the adjuvant comprises chitosan material.

37. The immunogen composition of claim 36, wherein the adjuvant comprises N,O-carboxymethyl chitosan.

38. The immunogen composition of claim 1, wherein the liquid vehicle comprises from 60 weight percent to 85 weight percent of the composition, the antigen comprises from 0.0001 weight percent to 5 weight percent of the composition, the polymer comprises from 5 weight percent to 33 weight percent of the composition and the additive comprises from 0.1 weight percent to 1.0 weight percent of the composition.

39. The immunogen composition of Claim 1, wherein the composition is in the form of disperse droplets in a mist.

40. The immunogen composition of Claim 39, wherein a mist is produced by a nebulizer.

41. The immunogen composition of Claim 1, wherein the composition is contained within a nebulizer actuatable to produce a mist comprising dispersed droplets of the composition.

42. The immunogen composition of Claim 40, wherein the nebulizer is a nasal nebulizer.

43. The immunogen composition of claim 1, wherein the composition is contained within an injection device that is actuatable to administer the composition to the host by injection.

44. A method of packaging and storing the immunogen composition of claim 5, comprising placing the composition in a container when the composition is in the form of a flowable medium and, after the placing, raising the temperature of the composition in the container to convert the composition to the gel form for storage, wherein the gel form in the container can be converted back to the form of a flowable medium for administration to the host by lowering the temperature of the composition in the container.

45. A delivery vehicle composition comprising:

a drug in an amount effective to produce a desired biological response in a host;

a reverse-thermal gelation biocompatible polymer;

a liquid vehicle in which the polymer is at least partially soluble at some temperature;

an additive selected from the group consisting of a penetration enhancer, an adjuvant and combinations thereof;

wherein proportions of the liquid vehicle and the polymer are such that the composition exhibits reverse thermal viscosity behavior in that the viscosity of the composition increases with increasing temperature over at least some temperature range.

46 The delivery vehicle composition of Claim 45, wherein the polymer is a block copolymer.

47 The delivery vehicle composition of Claim 45 wherein the block copolymer comprises at least one block of a polyoxyalkylene.

48 The delivery vehicle composition of Claim 47, wherein the polyoxyalkylene is a polyoxypropylene.

49. The delivery vehicle composition of Claim 47, wherein the polyoyxyalkylene is a polyoxyethylene.

50. The delivery vehicle composition of claim 45, wherein the polymer is a polyoxyalkylene block copolymer.

51 The delivery vehicle composition of claim 50, wherein the polyoxyalkylene block copolymer comprises at least one block of a first polyoxyalkylene and at least one block of a second polyoxyalkylene.

52. The delivery vehicle composition of claim 51, wherein the first polyoxyalkylene is a polyoxyethylene and the second polyoxyalkylene is a polyoxypropylene.

53. The delivery vehicle composition of claim 52, wherein the polyoxyethylene comprise at least 70 weight percent of the polymer.

54. The delivery vehicle composition of claim 52, wherein the polyoxypropylene has the formula $(C_3H_6O)_b$, where b is an integer.

55. The delivery vehicle composition of claim 52, wherein the polyoxypropylene has the formula

$$(OCHCH_2)_b$$
$$|$$
$$CH_3$$

where b is an integer.

56. The delivery vehicle composition of claim 45, wherein the temperature range is within a range of from 1 °C to 37 °C.

57. The delivery vehicle composition of claim 45, wherein the composition is in the form of a flowable medium at least at a first temperature and is in the form of a gel at least at a second temperature that is higher than the first temperature.

58. The delivery vehicle composition of claim 57, wherein the second temperature is 37 °C or lower.

59. The delivery vehicle composition of claim 45, wherein the additive comprises from 0.01% by weight to 10% by weight of the composition.

60. The delivery vehicle composition of claim 45, wherein the drug comprises an antigen.

61. The delivery vehicle composition of claim 60, wherein the additive comprises an adjuvant for the antigen, the adjuvant being selected from the group consisting of chitosan material, dimethyl dioctadecyl ammonium bromide (DDA), a CPG motif and a cytokine.

62. The delivery vehicle composition of claim 45, wherein the additive comprises a penetration enhancer selected from the group consisting of chitosan material, poly-L-arginines, fatty acids, salts of fusidic acid, polyoxyethylenesorbitan, sodium lauryl sulfate, polyoxyethylene-9-lauryl ether, citric acid, salicylates, caprylic glycerides, capric glycerides, sodium caprylate, sodium caprate, sodium laurate, sodium glycyrrhetinate, dipotassium glycyrrhizinate, glycyrrhetinic acid hydrogen succinate, disodium salt, acylcarnitines, phospholipids, a bacterially-derived product, lysophosphatidylcholine, a CpG motif, a detoxified mutant of CT, a detoxified mutant of ET and an outer membrane protein of Neisseria meningitidis serogroup b.

63. The delivery vehicle composition of claim 45, wherein the additive comprises chitosan material.

64. The delivery vehicle composition of claim 63, wherein the chitosan material comprises at least one of chitosan and a chitosan derivative.

65. The delivery vehicle composition of claim 63, wherein the chitosan material comprises N,O-carboxymethyl chitosan.

66. The delivery vehicle composition of Claim 45, wherein the composition is a disperse droplet phase in a mist.

67. The delivery vehicle composition of Claim 66, wherein the mist is produced by a nebulizer.

68. The delivery vehicle composition of Claim 45, wherein the composition is contained within a nebulizer that is actuatable to produce a mist comprising droplets of the composition.

69. The delivery vehicle composition of Claim 68, wherein the nebulizer is a nasal nebulizer.

70. The delivery vehicle composition of claim 45, wherein the composition is contained within an injection device that is actuatable to administer the composition to the host by injection.

71. A method of packaging and storing the delivery vehicle composition of claim 45, comprising placing the composition in a container when the composition is in the form of a flowable medium and then raising the temperature of the composition to convert the composition to a gel form for storage, wherein the gel form in the container can be converted back to the form at a flowable medium for administration to the host by lowering the temperature of the composition in the container.

72. A method for delivery of a drug to a host, the method comprising:

administering a delivery vehicle composition to the host;

the delivery vehicle composition comprising a drug, a reverse thermal gelation biocompatible polymer, a liquid vehicle in which the polymer is at least partially soluble at some temperature, and an additive selected from the group consisting of a penetration enhancer, an adjuvant and combinations thereof;

wherein proportions of the liquid vehicle and the polymer are such that the composition exhibits reverse thermal viscosity behavior in that the viscosity of the composition increases with increasing temperature over at least some temperature range.

73. The method of claim 72, wherein prior to the administering the delivery vehicle composition is at a temperature that is lower than the physiologic temperature of the host;

after the administering the delivery vehicle composition is warmed by the host so that the temperature of the composition increases; and

the delivery vehicle composition is in the form of a flowable medium immediately prior to the administering and the viscosity of the delivery vehicle composition increases after the administering when the temperature of the delivery vehicle composition increases.

74. The method of claim 72, wherein the delivery vehicle composition is in the form of a flowable medium immediately prior to the administering and converts to a gel form after the administering.

75. The method of claim 74, wherein said step of administering the drug delivery composition to the host comprises placing the composition into an injection device and administering the composition to the host by injection.

76. The method of claim 74, wherein at least a portion of the drug delivery composition in the gel form adheres to a mucosal surface, thereby retaining the drug and the additive in the vicinity of the mucosal surface for delivery of the drug across the mucosal surface.

77. The method of claim 76, wherein the mucosal surface is selected from the group consisting of rectal, vaginal, ocular, oral, nasal, intestinal, pulmonary or aural mucosal surfaces.

78. The method of claim 72, wherein the delivery vehicle composition is in the form of dispersed droplets in a mist during the administering.

79. The method of claim 78, wherein the mist is introduced into the nasal cavity of the host during the administering.

80. The method of claim 78, wherein the administering comprises nebulizing the composition to form the mist.

81. The method of claim 72, wherein the drug comprises an antigen to stimulate an immune response in the host.

82. The method of claim 81, wherein after the administering the composition is contacted with a mucosal surface within the host; and the antigen stimulates a mucosal immune response by the host.

83. The method of claim 82, wherein the antigen further stimulates a systemic immune response by the host.

84. The method of claim 83, wherein the administering comprises administering the composition into the nasal cavity of the host and the mucosal surface contacted by the composition is in the nasal cavity.

85. The method of claim 82, wherein the composition is in the form of a flowable medium immediately prior to the administering and converts to a gel form after the administering, so that at least of portion of the composition in the gel form adheres to the musosal surface.

86. The method of claim 81, wherein the additive comprises an adjuvant for the antigen.

87. The method of claim 86, wherein the additive comprises a penetration enhancer.

88. The method of claim 87, wherein the adjuvant and the penetration enhancer are the same material.

89. The method of claim 86, wherein the adjuvant comprises products of microorganisms, such as bacteria or yeast, that can enhance uptake and presentation of antigens by antigen presenting cells.

90. The method of claim 81, wherein the additive comprises an adjuvant selected from the group consisting of dimethyl dioctadecyl ammonium bromide (DDA), a C_pG motif, a cytokine, chitosan material and combinations thereof.

91. The method of claim 81, wherein the additive comprises chitosan material.

92. The method of claim 91, wherein the chitosan material is selected from the group consisting of chitosan and a chitosan derivative.

93. The method of claim 91, wherein the chitosan material comprises N,O-carboxymethyl chitosan.

94. The method of claim 87, wherein the additive comprises a penetration enhancer selected from the group consisting of chitosan material, poly-L-arginines, fatty acids, salts of fusidic acid, polyoxyethylenesorbitan, sodium lauryl sulfate, polyoxyethylene-9-lauryl ether, citric acid, salicylates, caprylic glycerides, capric glycerides, sodium caprylate, sodium caprate, sodium laurate, sodium glycyrrhetinate, dipotassium glycyrrhizinate, glycyrrhetinic acid hydrogen succinate, disodium salt, acylcarnitines, phospholipids, a bacterially-derived product, lysophosphatidylcholine, a CpG motif, a detoxified mutant of CT, a detoxified mutant of ET and an outer membrane protein of Neisseria meningitidis serogroup b.

95. The method of claim 81, wherein the antigen is derived from at least one of bacteria, protozoa, fungus, hookworm, virus and combinations thereof.

96. The method of claim 81, wherein the antigen comprises at least one of tetanus toxoid, diphtheria toxoid, a non-pathogenic mutant of tetanus toxoid, a non-pathogenic mutant of diphtheria toxoid and combinations thereof.

97. The method of claim 81, wherein the antigen comprises at least one antigen from Bordatella pertussis..

98. The method of claim 81, wherein the antigen comprises at least one antigen from influenza virus.

99. The method of claim 81, wherein the antigen comprises at least one antigen from M. tuberculosis.

100. The method of claim 81, wherein the antigen is derived from at least one causative agent of childhood illness.

101. The method of claim 81, wherein the antigen comprises at least one of rotavirus and at least one antigen derived from rotavirus.

102. The method of claim 81, wherein the antigen comprises at least one of a polysaccharide, a peptide mimetic of a polysaccharide, or antigen from Neisseria meningitiditis and an antigen from Streptococcus pneumoniae.

103. The method of claim 81, wherein the antigen comprises Epstein-Barr virus or at least one antigen from Epstein-Barr virus.

104. The method of claim 81, wherein the antigen comprises Hepatitis C virus or at least one antigen from Hepatitis C.

105. The method of claim 81, wherein the antigen comprises HIV or at least one antigen from HIV.

106. The method of claim 81, wherein the antigen comprises at least one molecule involved in a mammalian reproductive cycle.

107. The method of claim 81, wherein the antigen comprises HCG.

108. The method of claim 81, wherein the antigen comprises at least one tumor-specific antigen.

109. The method of claim 81, wherein the antigen comprises at least one antigen from a blood-borne pathogen.

110. The method of Claim 81, wherein the drug contains at least two antigens.

111. The method of claim 81, wherein the antigen comprises a first component selected from the group consisting of tetanus toxoid, a nonpathogenic mutant of tetanus toxoid and combinations thereof; and

the antigen comprises a second component selected from the group consisting of diphtheria toxoid, a nonpathogenic mutant of diphtheria toxoid and combinations thereof.

112. The method of Claim 81, wherein the immune response is a booster to a previous primary immunization of the host.

113. The method of Claim 112, wherein at least a portion of the delivery vehicle composition adheres to a mucosal surface within the host, thereby retaining the drug and the additive in the vicinity of the mucosal surface for delivery of the drug across the mucosal surface.

114. The method of Claim 112, wherein the magnitude of the immune response is the same or greater than a comparison immune response generated by administering in the same manner as the delivery vehicle composition a comparison composition that is the same as the delivery vehicle composition except being in the absence of one or both of the polymer and the additive.

115. The method of Claim 114, wherein the comparison composition is in the absence of both the polymer and the additive.

116. The method of claim 72, wherein the additive comprises chitosan material.

117. The method of claim 72, wherein the temperature range is below 40 °C.

118. The method of claim 72, wherein the composition is in the form of a flowable medium at a first temperature in a range of from 1 °C to 20 °C and is in a gel form at a second temperature that is higher than the first temperature.

119. The method of claim 118, wherein the second temperature is 37 °C or lower.

120. The method of claim 72, wherein the polymer is a block copolymer.

121. The method of claim 120, wherein the block copolymer comprises at least one block of a polyoxyalkylene.

122. The method of claim 121, wherein the polyoxyalkylene is a polyoxypropylene.

123. The method of claim 121, wherein the polyoxyalkylene is a polyoxyethylene.

124. The method of claim 120, wherein the polymer is a polyoxyalkylene block copolymer.

125. The method of claim 124, wherein the polyoxyalkylene block copolymer comprises at least one block of a first polyoxyalkylene and at least one block of a second polyoxyalkylene.

126. The method of claim 124, wherein the first polyoxyalkylene is a polyoxyethylene and the second polyoxyalkylene is a polyoxypropylene.

127. A method for delivery of an antigen to a host to stimulate an immune response in the host, the method comprising:

introducing an immunogen composition into a host and the immunogen comprising an antigen, a reverse thermal gelation biocompatible polymer, a liquid vehicle in which the polymer is at least partially soluble at some temperature, and an additive selected from the group consisting of a penetration enhancer, an adjuvant and combinations thereof for enhancing the immune response;

wherein, immediately prior to the introducing the composition is in the form of a flowable medium at a first temperature below the physiologic temperature of the host, and after the introducing the composition warms within the host to at least a second temperature at which the composition is in the form of a gel.

128. The method of claim 127, wherein said steps of introducing the immunogen composition into the host comprises placing the composition into an injection device and administering the composition to the host by injection.

129. The method of claim 127 wherein the method comprises contacting the immunogen composition with a mucosal surface of a host and during the contacting at least a portion of the gel adheres to the mucosal surface whereby at least a portion of the antigen and the additive are retained in the vicinity of the mucosal surface for delivery of the antigen across the mucosal surface.

130. The method of claim 129, wherein the mucosal surface is selected from the group consisting of rectal, vaginal, ocular, oral, nasal, intestinal, pulmonary or aural mucosal surfaces.

131. The method of claim 127, wherein the first temperature is less than 37 °C.

132. The method of claim 127, wherein the second temperature is 37 °C or less.

133. The method of claim 129, wherein the drug delivery composition is in the form of dispersed droplets in a mist during the administering.

134. The method of claim 133, wherein the mist is introduced into the nasal cavity of the host during the introducing.

135. The method of claim 134, wherein the introducing comprises nebulizing the composition to form the mist.

136. The method of claim 129, wherein the composition stimulates a mucosal immune response in the host.

137. The method of claim 136, wherein the composition also stimulates a systemic immune response in the host.

138. The method of claim 127, wherein the additive comprises an adjuvant for the antigen.

139 The method of claim 127, wherein the additive comprises a penetration enhancer.

140. The method of claim 127 wherein the adjuvant comprises products of microorganisms, such as bacteria or yeast, that can enhance uptake and presentation of antigens by antigen presenting cells.

141. The method of claim 127, wherein the adjuvant comprises dimethyl dioctadecyl ammonium bromide (DDA).

142. The method of claim 127, wherein the adjuvant comprises a C_pG motif.

143. The method of claim 127 wherein the adjuvant comprises a cytokine.

144. The method of claim 127, wherein the adjuvant comprises chitosan material.

145. The method of claim 144, wherein the chitosan material is selected from the group consisting of chitosan and a chitosan derivative.

146. The method of claim 144, wherein the chitosan material comprises N,O carboxymethyl chitosan.

147. The method of claim 127 wherein the additive comprises a penetration enhancer selected from the group consisting of chitosan material, poly-L-arginines, fatty acids, salts of fusidic acid, polyoxyethylenesorbitan, sodium lauryl sulfate, polyoxyethylene-9-lauryl ether, citric acid, salicylates, caprylic glycerides, capric glycerides, sodium caprylate, sodium caprate, sodium laurate, sodium glycyrrhetinate, dipotassium glycyrrhizinate, glycyrrhetinic acid hydrogen succinate, disodium salt, acylcarnitines, phospholipids a bacterially-derived product, lysophosphatidylcholine, a CpG motif, a detoxified mutant of CT, a detoxified mutant of ET and an outer membrane protein of Neisseria meningitidis serogroup b.

148. The method of claim 127, wherein the adjuvant and the penetration enhancer are the same material.

149. The method of claim 127, wherein the antigen is derived from at least one of bacteria, protozoa, fungus, hookworm, virus and combinations thereof.

150. The method of claim 127, wherein the antigen comprises at least one of tetanus toxoid, diphtheria toxoid, a non-pathogenic mutant of tetanus toxoid, a non-pathogenic mutant of diphtheria toxoid and combinations thereof.

151. The method of claim 127, wherein the antigen comprises at least one

antigen from Bordatella pertussis.

152. The method of claim 127, wherein the antigen comprises at least one antigen from influenza virus.

153 The method of claim 127, wherein the antigen comprises at least one antigen from M. tuberculosis.

154. The method of claim 127, wherein the antigen is derived from at least one causative agent of childhood illness.

155 The method of claim 127, wherein the antigen comprises at least one of rotavirus and at least one antigen derived from rotavirus.

156. The method of claim 127, wherein the antigen comprises at least one of a polysaccharide, a peptide mimetic of a polysaccharide, or antigen from Neisseria meningitiditis and an antigen from Streptococcus pneumoniae.

157. The method of claim 127, wherein the antigen comprises Epstein-Barr virus or at least one antigen derived from Epstein-Barr virus.

158. The method of claim 127, wherein the antigen comprises Hepatitis C virus or at least one antigen derived from Hepatitis C virus.

159. The method of claim 127, wherein the antigen comprises HIV or at least one antigen derived from HIV.

160. The method of claim 127, wherein the antigen comprises at least one molecule involved in a mammalian reproductive cycle.

161. The method of claim 127, wherein the antigen comprises HCG.

162. The method of claim 127, wherein the antigen comprises at least one tumor-specific antigen.

163. The method of claim 127, wherein the antigen comprises at least one antigen from a blood-borne pathogen.

164. The method of Claim 127, wherein the immunogen contains at least two antigens.

165. The method of claim 127, wherein the antigen comprises a first component selected from the group consisting of tetanus toxoid, a nonpathogenic mutant of tetanus toxoid and combinations thereof;

the antigen comprises a second component selected from the group consisting of diphtheria toxoid, a nonpathogenic mutant of diphtheria toxoid and combinations thereof.

166. The method of claim 127, wherein the antigen comprises a first component selected from the group consisting of tetanus toxoid, a nonpathogenic mutant of tetanus toxoid and combinations thereof;

the antigen comprises a second component selected from the group consisting of diphtheria toxoid, a nonpathogenic mutant of diphtheria toxoid and combinations thereof; and the adjuvant comprises chitosan material.

167. The method of claim 127, wherein the polymer is a polyoxyalkylene block copolymer.

168. The method of claim 127, wherein said immunogen composition of the present invention produces at least a humoral immune response.

169. The method of claim 127, wherein said host is human.

170. A vehicle delivery composition for mucosal delivery of a drug, the vehicle delivery composition comprising:

a mist comprising droplets of a flowable medium dispersed in a carrier gas;

the flowable medium comprising an antigen, a biocompatible polymer and a liquid vehicle;

wherein, the polymer interacts with the liquid vehicle to impart reverse thermal viscosity behavior to the composition, so that the viscosity of the composition increases when the temperature of the composition increases over at least some temperature range.

171. The vehicle delivery composition of Claim 170, wherein the flowable medium has a reverse-thermal liquid-gel transition temperature that is lower than 40 °C.

172. The vehicle delivery composition of Claim 171, wherein the flowable medium in the mist is at a temperature of 20 °C or less and the transition temperature is in a range of from 20 °C to 37 °C.

173. The vehicle delivery composition of Claim 170, wherein the drug comprises an antigen for stimulating a mucosal immune response when the vehicle delivery composition is administered to the host.

174. The vehicle delivery composition of Claim 173, wherein the antigen is derived from at least one of bacteria, protozoa, fungus, hookworm, virus and combinations thereof.

175. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one of tetanus toxoid, diphtheria toxoid, a non-pathogenic mutant of tetanus toxoid, a non-pathogenic mutant of diphtheria toxoid and combinations thereof.

176. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one antigen from Bordatella pertussis.

177. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one antigen from influenza virus.

178. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one antigen from M. tuberculosis.

179. The delivery vehicle composition of Claim 173, wherein the antigen is derived from at least one causative agent of childhood illness.

180. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one of rotavirus and at least one antigen derived from rotavirus.

181. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one of a polysaccharide, a peptide mimetic of a polysaccharide, or antigen from Neisseria meningitiditis and an antigen from Streptococcus pneumoniae.

182. The delivery vehicle composition of Claim 173, wherein the antigen comprises Epstein-Barr virus or at least one antigen derived from Epstein-Barr virus.

183. The delivery vehicle composition of Claim 173, wherein the antigen comprises Hepatitis C virus or at least one antigen derived from Hepatitis C virus.

184. The delivery vehicle composition of Claim 173, wherein the antigen comprises HIV or at least one antigen derived from HIV

185. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one molecule involved in a mammalian reproductive cycle.

186. The delivery vehicle composition of Claim 173, wherein the antigen comprises HCG.

187. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one tumor-specific antigen.

188. The delivery vehicle composition of Claim 173, wherein the antigen comprises at least one antigen from a blood-borne pathogen.

189. The delivery vehicle composition of Claim 173, wherein the composition contains at least two antigens.

190. The delivery vehicle composition of Claim 173, wherein the antigen comprises a first component selected from the group consisting of tetanus toxoid, a nonpathogenic mutant of tetanus toxoid and combinations thereof; and

the antigen comprises a second component selected from the group consisting of diphtheria toxoid, a nonpathogenic mutant of diptheria toxoid and combinations thereof.

191. The delivery vehicle composition of Claim 170, wherein the polymer is substantially entirely dissolved in the liquid vehicle.

192. The delivery vehicle composition of Claim 191, wherein the drug is substantially entirely dissolved in the liquid vehicle.

193. The delivery vehicle composition of Claim 170, wherein the polymer comprises a polyoxyalkylene block copolymer.

194. A method of mucosal delivery of a drug to a host, the method comprising comprising:

introducing a drug delivery vehicle composition into the host, the drug delivery compostion comprising an antigen, a biocompatible polymer and a liquid vehicle, wherein the polymer interacts with the liquid vehicle to impart reverse thermal viscosity behavior to the composition, so that the viscosity of the composition increases when the temperature of the composition increases over at least some temperature range; and

contacting at least a portion of the drug delivery vehicle with a mucosal surface of the host;

wherein during the introducing, the delivery vehicle composition is in the form of disperse droplets in a mist.

195. The method of Claim 194, wherein during the introducing, the delivery vehicle composition is in the form of a flowable medium at a first temperature that is lower than the physiologic temperature of the host; and

the delivery vehicle composition converts to a gel form as the delivery vehicle compostion warms inside the host.

196. The method of Claim 194, wherein the drug comprises an antigen.

197. The method of Claim 195, wherein the polymer comprises a polyoxyalkylene block copolymer.